

REMARKS

Claims 15, 17, 18 and 19 stand rejected under 35 USC 102(b) as anticipated by Meacock, II et al. In addition, Claim 16 stands rejected under 35 USC 103(a) as obvious over Meacock, II et al.

The claimed invention is directed to a powder product for the protection of centrifugal casting molds used in the manufacture of cast iron pipes and comprising a mixture of at least one inoculating alloy, at least one strongly reducing metal that is volatile at the temperature of liquid cast iron, and optionally, an inert mineral powder.

Meacock II, et al is directed to a process for producing cast iron brake elements in which a molding surface of the brake element casting mold is coated nodularizing agent. Suitable nodularizing agents disclosed at column 3, lines 34-37 include "iron-containing agents, such as ferrosilicon alloys, containing iron, calcium, magnesium and silicon." At column 3, lines 39-41, Meacock II, et al states: "[i]n a preferred embodiment of the invention, a combination of a ferrosilicon alloy and magnesium agents is used."

While the claimed invention can include a mixture of ferrosilicon alloy as the inoculating alloy, in combination with magnesium as the strongly reducing metal, Applicant has previously pointed out that magnesium cannot be volatile in the form in which it is used by Meacock, II et al. This has been disputed in the Office action with the statement that "[i]t is because magnesium has boiling temperature lower than the temperature of the molten cast iron and when it is in contact with the molten iron it is inherently volatile. Since magnesium agent and inoculating alloy are being coated on the surface of the mold, they are submerged in molten iron when molten iron is poured into the mold and any magnesium in volatile [sic] penetrates into the into the bulk of the melt

to nodularize the cast iron."

Applicant strongly disagrees with this interpretation. While magnesium *in pure form* is certainly volatile at the temperature of the molten cast iron, the magnesium which is present in Meacock, II et al is identified as a "magnesium agent." If this magnesium were actually pure magnesium, volatile at the temperature of the molten cast iron, *it would vaporize immediately upon exposure to the cast iron and would not penetrate into the molten cast iron* in order to nodularize the cast iron. Contrary to the statement made in the Office Action, magnesium vapor does not nodularize the molten cast iron. It is specifically for that reason that a *magnesium agent* is used, the agent preventing rapid volatilization of the magnesium so that it has time to penetrate into the cast iron.

Thus, according to Meacock, II et al, the magnesium agent must be understood as meaning a compound or alloy which contains magnesium, and which is able to bring the required amount of magnesium for forming ductile cast iron into the cast iron. Pure magnesium would not qualify as a magnesium agent suitable for use as a nodularizing agent according to Meacock, II et al, since the pure magnesium would volatilize immediately when brought into contact with molten cast iron and would not nodularize the cast iron.

As an example, magnesium oxide is known to be a magnesium agent suitable for nodularizing cast iron. However, magnesium oxide is clearly not volatile at the temperature of the molten cast iron according to the claimed invention. Another magnesium agent used for nodularizing is magnesium silicide. This magnesium agent has commonly been used for inoculating cast iron because it does not evaporate when brought into contact with the molten cast iron, enabling the magnesium to be introduced into the melt.

Consequently, the Meacock, II et al patent does not disclose or suggest any composition comprising both an inoculating alloy and at least one strongly reducing metal that is volatile at the temperature of liquid cast iron. Withdrawal of this rejection is accordingly requested.

Claims 15-19 and 28 have been rejected under 35 USC 103(a) over Wehmeier et al.

Wehmeier et al discloses a powdered material to be sprinkled or otherwise applied in a thin layer on the upper surface of a molten metal as it is being fed into a mold. The powdered material may be a reactive metallic material, such as ferrosilicon, manganese silicon, ferro-phosphorus, or calcium, magnesium or aluminum alloys may be used. See column 2, lines 12-16.

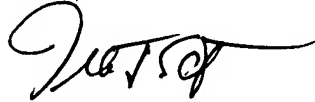
In order to suggest the invention, however, Wehmeier et al would need to suggest a combination of, for example, ferrosilicon and pure magnesium. Not only is such a combination not suggested, the "calcium, magnesium or aluminum" are disclosed as being in alloy form. If the magnesium were in pure form, it would immediately volatilize upon being applied to the molten metal, and would not be reactive, as is specifically disclosed in the Wehmeier et al patent. Note that Wehmeier et al states, at column 2, lines 37-41, that "[i]f the powder is a substance which reacts chemically with the iron such as ferro-silicon it may be sufficiently fine that it dissolves in or reacts with the iron before the iron contacts the mold." Since magnesium alloy is specifically disclosed as being a reactive metallic material, it is clear that Wehmeier et al intends that the magnesium alloy react with or dissolve in the molten iron before the iron contacts the mold; *if the magnesium were pure magnesium, it would volatilize immediately and not dissolve in or react with the iron.*

Withdrawal of this rejection is requested.

The allowability of Claims 20-27 and 29 has been noted.

In view of the foregoing remarks, Applicant submits that the present application is now in condition for allowance. An early allowance of the application is earnestly solicited.

Respectfully submitted,



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